UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,062	06/25/2003	Dinei A.F. Florencio	MCS-019-03	1634

		EXAMINER
7590	06/04/2007	DIEP, NHON THANH

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ART UNIT	PAPER NUMBER
2621	

MAIL DATE	DELIVERY MODE
06/04/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/606,062	FLORENCIO, DINEI A.F.
	Examiner	Art Unit	
	Nhon T. Diep	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 February 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/04/2003*.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____ .

DETAILED ACTION

1.   Upon reconsideration, the examiner withdraws the restriction requirement and all

claims will be examined.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3.   Claims 1-2, 7-9, 15, 18, 28-29, 31-32 are rejected under 35 U.S.C. 102(e) as

being anticipated by Faroudja (US 2004/0196902 A1).

        Faroudja discloses a multi-layer video compression system with synthetic high

frequencies comprising the same method for coding video data, comprising: dividing the

video data into a plurality of layers (figure 4, el. 26 and 28); encoding each of the

plurality of layers independently of each other to produce an encoded version of the

video data (el. 42 and 48); and decoding each of the plurality of layers independently of

each other to produce a reconstructed version of the video data (fig. 8, el. 50 and 52) as

specified in claims 1, 8 (+ paragraph 0068), 15, 28, 32; further comprising assigning a

frequency band to each of the plurality of layers such that each layer contains a unique

range of frequencies (figure 4, el. 26 and 28) as specified in claims 2 and 29; a

computer-readable medium having computer-executable instructions for performing the

method recited in claim 1 (paragraph 0068) as specified in claims 7 and 18; wherein

dividing further comprises creating a low frequency layer containing low frequencies, a

mid frequency layer containing mid-range frequencies, and a high frequency layer

containing high frequencies (fig. 10, output of 66, output of 68 and output of 46) as

specified in claim 9; filtering the prediction frame for each of the plurality of layers to

eliminate any frequencies outside of a corresponding frequency band for that layer (fig.

10, el. 26 and 68) as specified in claim 31.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 3-6, 10-13, 16-17, 19-20, 29-30 and 33 are rejected under 35 U.S.C.

103(a) as being unpatentable over Faroudja.

As applied to claims 1-2, 8, 15, 28 and 32 above, it is further noted that Faroudja

teaches filtering the prediction frame for each of the plurality of layers to eliminate any

frequencies outside of a corresponding frequency band for that layer (fig. 10, el. 26 and

68) as specified in claims 6, 13, 17, 19, 20 and 33 and encoding and decoding video

motion as per MPEG-2. However, Faroudja does not particularly disclose encoding and

decoding is performed using motion compensation technique as specified in claims 3

and 10; encoding further comprises dividing a reference frame of the video data into a

plurality of layers containing reference sub-frames, wherein each of the reference sub-

frames contains a unique frequency band as specified in claims 4, 11, 16, 29 and 33;

further comprising generating predicted frames each containing a unique frequency

band for each of the plurality layers using the corresponding reference sub-frame

containing the unique frequency band to generate predicted sub-frames as specified in

claims 5, 12, 19, 30 and 33.

Regarding to claims 3 and 10: It is submitted that encoding and decoding video

motion as per MPEG-2 does include the technique of motion compensation.

Regarding to claims 4-5, 11-12 and 19: Since Faroudja divides frames into

multiple layers, at the least, low frequency and high frequencies, and when encoding

and decoding motion video as per MPEG-2 standards, Faroudja teaches dividing a

reference frame of the video data into a plurality of layers containing reference sub-

frames, wherein each of the reference sub-frames contains a unique frequency band

and generating predicted frames each containing a unique frequency band for each of

the plurality layers using the corresponding reference sub-frame containing the unique

frequency band to generate predicted sub-frames and filtering each of the predicted

sub-frames based on the unique frequency band of that predicted sub-frame such that

frequencies outside of the unique frequency band are eliminated to generate modified

predicted sub-frames at each of the plurality of layers.

6. Claims 14 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Faroudja, in view of Weber (US 4,306,223).

As applied to claims 8 and 20, it is noted that Faroudja does not particularly

disclose the oversampling the frequency band to eliminate spatial aliasing effects as

specified in claims 14 and 21. Weber teaches "If time division multiplexing is used, 50%

to 80% additional bandwidth must be provided for <u>oversampling</u> to minimize <u>aliasing</u>

errors. In addition, presampling filtering must be used which further deducts from the

usable <u>video</u> bandwidth." (col. 1. ln. 61-63). And therefore, it would have been obvious

to one of ordinary skilled in the art at the time the invention was made to modify the

system of Faroudja in encoding and decoding video motion as per MPEG-2 by

oversampling frequency bands to minimize aliasing errors. Doing so would help to

obtain better pictures at the decoder.

7.   Claims 22-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Faroudja, in view of Dimitrova et al (US 6,714,594).

As applied to claim 19-20, Faroudja further discloses wherein the frequency band

is a portion of all frequencies contained in the video data (low or high frequency, fig. 8,

el. 50, 52) as specified in claim 24; wherein the frequency band represents a resolution

level of the video data (low = main layer) as specified in claim 25; further comprising

filtering the predicted sub-frame to remove frequencies outside of the frequency band to

generate a modified predicted sub-frame (fig. 11, main-54-76) as specified in claim 26.

It is noted that Faroudja does not particularly disclose the generating a residual sub-

frame using the modified predicted sub-frame, wherein the residual sub-frame contains

a same frequency band as the modified predicted sub-frame as specified in claims 22-

23 (decoding process of the claim 23 is rejected as being a reverse process of claim 19

and paragraph 0068). Dimitrova et al teaches that "Compressing video images to

generate P-<u>frames</u> and B-<u>frames</u> involve more complex processes. A computer takes a

first image and its predecessor image and looks for where each block (or macroblock,

depending on the selection of the user) moved from one image to the next. Instead of

describing the whole block in the P-frame, the MPEG-2 data simply indicates where the

block in the earlier frame moved to in the new frame. This is described as a vector, a

line, or arrow, whose length indicates distance of the movement and whose orientation

indicates the direction of the movement. This kind of description is faulty, however,

because not all motion in video can be described in terms of blobs moving around. The

defect, however, is fixed by transmitting a correction that defines the difference between

the image as predicted by a motion description and the image as it actually looked.

This correction is called the residual. The motion data and residual data are subjected

to the DCT and quantization, just as the I-frame image data. B-frames are similar to P-

frames, except that they can refer to both previous and future frames in encoding their

data. " (col. 3, ln. 33-52). And therefore, it would have been obvious to one of ordinary

skilled in the art at the time the invention was made to modify the system of Faroudja in

encoding and decoding video motion as per MPEG-2 by generating a residual sub-

frame using the modified predicted sub-frame and as a result, the residual sub-frame

contains a same frequency band as the modified predicted sub-frame. Doing so would

help to obtain better pictures at the decoder.

Regarding to claims 27: Since Faroudja divides frames into multiple layers, at

the least, low frequency and high frequencies, and when decoding motion video as per

MPEG-2 standards, Faroudja teaches dividing a reference frame of the video data into

a plurality of layers containing reference sub-frames, wherein each of the reference sub-

frames contains a unique frequency band and reconstructing a current sub-frame using the modified predicted sub-frame, wherein the current sub-frame contains the frequency band.

Conclusion

8.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

  a. Gharavi (US 5,253,058) discloses an efficient coding scheme for multilevel video transmission.

  b. Wang et al (US 6,917,711) discloses embedded quadtree wavelets in image compression.

  c. Morelos-Zaragoza et al (US 6,643,332) discloses multilevel coding for video signals

9.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhon T. Diep whose telephone number is 571-272-7328. The examiner can normally be reached on m-f.
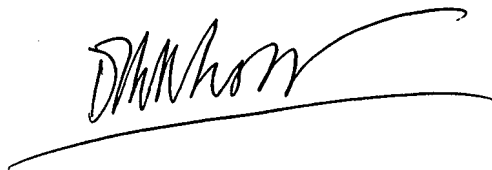
  If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NND
5/25/2007

NHON DIEP
PRIMARY EXAMINER